H_2SO_4: Dissolve 5.6 mL concentrated sulfuric acid in 1000 mL water
KCl: Dissolve 7.5 g solid potassium chloride in 1000 mL water
$C_{12}H_{22}O_{11}$: Dissolve 34.2 g solid sucrose in 1000 mL water
C_2H_5OH: Dissolve 4.6 mL absolute, denatured ethanol to 1000 mL water (approximation)
Distilled H_2O (pure solvent): Use fresh, distilled water

References

This activity was designed by David English, Michelle Chadwick, and Jody Holloway from Northside High School Science Department Jacksonville, NC.

Answers to Questions

Part I

1. Examine the colors of Litmus in the solution. Place the solutions into groups of substances that have similar effects on litmus. State the reason that you have grouped the substances as you have.

Substance
HCl: Blue litmus turns red
NaOH: Red litmus turns blue
$HC_2H_3O_2$: Blue litmus turns red
NaCl: No color change
KOH: Red litmus turns blue
$Ca(OH)_2$: Red litmus turns blue
H_2SO_4: Blue litmus turns red
KCl: No color change
$C_{12}H_{22}O_{11}$: No color change
C_2H_5OH: No color change
Distilled H_2O (pure solvent): no color change

2. Examine the electrical conductivity seen with each solution. Place the solutions into groups based on their ability to conduct electricity. In words, state the reason that you have grouped the substances as you have.

Electrolytes	***Nonelectrolytes***
HCl, NaOH, $HC_2H_3O_2$, NaCl, KOH, $Ca(OH)_2$, H_2SO_4, KCl	***$C_{12}H_{22}O_{11}$, C_2H_5OH***

3. Examine the pH of the solutions. Place the solutions in groups based on your pH measurements. In words, state the reason that you have grouped the substances as you have.

pH <7	***pH> 7***	***pH approximately equal to distilled water***
HCl, $HC_2H_3O_2$, H_2SO_4	***NaOH, KOH, $Ca(OH)_2$***	***NaCl, KCl, $C_{12}H_{22}O_{11}$,***